

QUARTERLY REPORT

January 18, 1980

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APPLICATIONS OF HCMM DATA

TO

SOIL MOISTURE SNOW

AND

ESTUARINE CURRENT STUDIES

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Identification Number - HCM-045

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SIS/902.6  
HCMM 045  
TYPE II

#### A. Problems

The aircraft data taken coincident with the HCMM satellite on June 13, 1979 were received in early October. Unfortunately the data were contaminated with so much noise that any useful information contained in the data was lost. Images from both night and day aircraft flights were sent to Locke Stuart for his evaluation. A request to have a special priority placed on the two HCMM 6/13/79 overpasses of our Luverne test site resulted in further disappointment. Neither tape could be read on first attempt. A second attempt will be made by avoiding system constraints, but little chance is given for success. Overall, aircraft and satellite data in support of our extensive 6/13/79 ground survey at Luverne have proved useless and the absence of such data seriously restricts the soil moisture portion of our study.

#### B. Accomplishments

HCMM computer compatible tapes (CCT's) have been reformatted to fit the VIRGS (Visible and Infrared Spin Scan Radiometer Interactive Registration and Gridding System) at NESS. The VIRGS is a man-machine interactive system that permits an individual to manipulate data to achieve the optimal visual display. Plans are to acquire hard copy equipment that will produce high quality color images.

On December 4 and 5, 1979, the Data Collection Platform (DCP) was successfully installed at our Luverne test site. Unfortunately the soil moisture gauge had filled with water, creating a short circuit in the electronics of the gauge. Repairs should be completed by early spring to permit reinstallation in May. Information on battery voltage and

temperature are currently being received every 3 hours from the site.

C. Significant Results

None

D. Publications

None

E. Recommendations

Ordered CCT's, unless placed on a priority basis, are still as much as 7 months in delivery. A reduction to a four-week turn around would be desirable.

F. Funds Expended to Date

|                   |            |
|-------------------|------------|
| Balance of funds  | 4.6 k      |
| Spent this period | <u>2.6</u> |
| Funds remaining   | 2.0 k      |

G. Data Utility

Eight CCT's ordered. Data quality essentially unchanged from last reporting period. Various types of noise in the data have been brought to Locke Stuart's attention.

H. Future Plans

We expect work to begin on repairs of the soil moisture guage. HCMM data will be screened in an attempt to find a replacement for the unavailable 6/13/79 data at the Luverne test site. Imagery for the Cooper and Potomac Rivers will be examined and CCT'S ordered to examine the tidal fluctuations of these estuaries.

December 4, 1979

OA/S33:DFM

Dr. John C. Price  
Code 913.0  
NASA/Goddard Space Flight  
Center  
Greenbelt, Maryland 20771

Dear John,

We would hereby like to make a priority request for HCMM data of Luverne test site on June 13, 1979. On June 13, a major collection of soil moisture and meteorological data was accomplished at our Luverne, Minnesota, test site. The weather conditions were ideal for both night (early morning) and day (early afternoon) overpasses of the HCMM satellite. Cloudless skies prevailed until 4:30 pm LDT--well after the second HCMM overpass.

All ground-collected data have been analyzed and are ready to be evaluated with the HCMM data. No formal request has been previously for the data because of its expected receipt about October 1, 1979. Unfortunately, conversations with Locke Stuart indicate that because of excessive yaw in the spacecraft, data collected after April 1, 1979 will not be processed until the computer algorithms is rewritten to accommodate the excessive yaw. Stuart stated that the new algorithm will not be ready until approximately March 1980. Such a delay in processing the 6/3/79 data prevents us from meeting our contract obligations.

We therefore request that NASA/GSFC place a special priority on processing the two satellite overpasses of our Luverne site. Such processing should include tapes, one for each overpass and one combining the two for thermal inertia studies.

Sincerely,

Donald R. Wiesner, Acting Director,  
Environmental Sciences Group

OA/S33:McGinnis:Smithe:8036

